REMARKS

Claim Status:

- Claims **1-7** and **29** are pending.

Claim Amendments

- Claims **1, 2, 4, 6** and **7** are currently amended.
- New claim **30** is added.

Claim Rejections

Claims 1-4, 6-7 and 29

The Office rejected claims 1-4, 6-7 and 29 under 35 USC §102(b) as being anticipated by, or in the alternative, under 35 USC 103(a) as obvious over *Nakagawa et al.* (3,901,819).

In response, applicants **amended** claims **1, 2, 4, 6** and **7** to replace the semi-open ended phrase "consisting essentially of" with the closed-ended phrase "**consisting of**". As amended, the present claims exclude any ingredients not explicity listed in the claim. In particular, the amended claims **exclude component (A)** of Nakagawa's formulations, i.e., an acetic acid ester of a monosaccharide, a disaccharide, a sugar alcohol, an internal anhydride of a sugar alcohol, or erythritol, said ester having at least 2 ester groups on the adjacent carbon atoms.

Issue # 1: No prima facie teaching of all of the elements

As is often said, the chemical arts are the "**unpredictable**" arts. The expected effectiveness of adding or subtracting a particular ingredient in a complex formulation often cannot be predicted in advance, without doing some sort of experimentation. This is especially true with respect to decontamination of biological pathogens.

Nagakawa teaches that they discovered, "unexpectedly", that it was the **synergestic combination** of ingredients **(A)** and **(B)** that greatly enhanced the

[bleaching] activating effect of their improved formulation for making clothes brighter. See Col. 1, lines 38-43.

Nagakawa further teaches, at Col. 2, lines 22-29: *"The synergistic effects of (1) improving the water solubility and (2) enhancing the activating property, that characterize the composition of this invention,* ***can be attained only by employing a combination*** *of* ***[A]*** *an acetic acid ester of a sugar or sugar alcohol etc. as set forth above and* ***[B]*** *an acetic acid ester of a polyhydric alcohol having a melting point not higher than about 30 degree C."*

Since *Nakagawa* teaches that ingredient (**B**) (i.e., a water-soluble bleaching activator) **must be combined** with ingredient (**A**) an acetic acid ester of a sugar or sugar alcohol etc. as set forth above, in order to have an effective bleaching activator for making clothes whiter; and since applicants have specifically excluded ingredient (**A**) from the amended claims, it then follows that *Nakagawa et al.* does not anticipate or make unpatentable claims **1-7** and **29** under 35 USC 102(b) or 103(a), respectively.

Issue # 2: Teaching away from the invention

Nagakawa teaches that the use of ingredient (**B**) alone, e.g. ethylene glycol diacetate (a water-soluble bleaching activator) is "**ineffective**" as a bleaching activator when used without ingredient (**A**) (e.g., sorbitol hexacetate). See Nakagawa Col. 3, line 63 to Col. 4, line 3. Hence, Nakagawa **teaches away** from using ingredient (B) alone i.e., without ingredient (A), because **no reasonable person would be motivated** to add an ingredient (ingredient (B) alone) that is ineffective.

Issue # 3: Non-Analogous Art

Applicants' various decontamination formulations, as recited in claims **1-7** and **29**, have been tested in a number of different experiments and shown to achieve extremely high rates of disinfection and sterilization of biological pathogens (i.e., 7-8 log kill of *Bacillus globigii* spores in as short as 15 minutes), **without requiring the use of Nakagawa's part (A).**

The beneficial impact on sterilization of biological pathogens of adding a bleaching activator to a simple aqueous solution of potassium bicarbonate and hydrogen peroxide was not previously known before this invention. As discovered by the inventors, addition of the bleaching activator (e.g., diacetin) unexpectedly and dramatically increased the spore kill efficiency (from 3 log-kill without diacetin, to 7-log kill with diacetin. (See specification, page 21, lines 5-14).

Nowhere does *Nakagawa* teach or suggest that his formulations would have any effect of sterilization of biological pathogens. *Nakagawa's* formulations were developed and tested to improve the whiteness/brightness of clothes; an completely **non-analogous art** from the present invention. Hence, there is no motivation or reason why a person of ordinary skill in the art of washing clothes to seek to modify Nakagawa's formulations for the purpose of sterilizing biological pathogens. It is inappropriate to apply such non-analogous art to reject the present claims.

In particular, the present formulations in claims **1-7** and **29** were developed specifically to eliminate the use of cationic surfactants, such as benzalkonium chloride, so as to not leave a residue on surfaces that contact food. See Specification, page 21, lines 15-18. Nowhere does *Nakagawa* teach or suggest that his formulations are safe for use on surfaces that contact food. This goes to the issue of lack of motivation for applying the Nakagawa reference against the present claims.

Accordingly, claims **1-4, 6-7** and **29**, as currently amended, are now in condition for allowance.

Claims 3 and 7

Claims 3 and 7 recite the ingredient **potassium acetate**. Nowhere does Nakagawa teach or suggest the use of potassium acetate. The instant specification teaches that potassium acetate is a useful substitute base/buffer for potassium carbonate base/buffer, because it serves as an antifreeze agent and crystal de-icer in aqueous solutions. An ordinary person in the art of washing powders would have no reasonable motivation to seek to add an antifreeze or crystal de-icer agent to a clothes washing solution. However, such an ingredient does have utility in the present formulations for

use against surfaces outside that have been contaminated with biological pathogens in freezing temperatures.

Claim 5

The Office rejected claim 5 under 35 USC 103(a) as obvious over *Nakagawa et al.* in view of Huth (6,448,062).

Claim 5 depends from claim 4, which is now in condition for allowance. It follows then that claim 5 is also allowable.

New Claim 30

New claim 30 is added, which depends from claim 1, and limits the water-soluble bleaching activator to being acetylcholine chloride or 4-cyanobenzoic acid. Neither of these bleaching activators belong to the class of activators (Ingredient B) taught by Nakagawa, which are acetic acid esters of a polyhydric alcohol having a melting point not higher than 30 C.

Since the subject matter of claim 30 has already been searched as part of the Markush Group in claim 1, no new search should be required additional claim 30.

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CONCLUSION

Applicants have responded to the Advisory office action with a RCE. Applicants submit that Claims 1-7 and 29, as currently amended, and new claim 30, are now in condition for allowance.

The Office is authorized to charge Deposit Account # 19-0131 for any necessary fees regarding this response, including extensions of time, and additional claims fees.

Respectfully submitted,

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